

## MARCH 1973

**GENE AMDAHL** (p. 39). “The large computer market is the market that is being addressed most poorly by any of the competition today. It is also the most difficult market to address, and requires the most skill, technological know-how, and financial backing. Because this is so, if we can meet these challenges properly, we would reasonably expect to have considerably less “transient” competition.”

“So the Amdahl Corporation seems to have a comfortable backlog, adequate financing, and the considerable talents and reputation of their president. What they don’t have is a detailed product description and that all-important track record of successful delivery, installation, operation, and support. And a great deal hinges on Gene Amdahl’s judgment that IBM’s flank really is exposed.”

**THE FLEXIBLE DISKETTE** (p. 43). “A versatile system for entering information into a computer—with a dramatically different look in data storage media—has been announced by International Business Machines Corporation.

“The IBM 3740 data entry system incorporates a flexible disk cartridge for capturing data called the IBM Diskette. Weighing just over an ounce, the flexible diskette resembles a small phonograph record, yet can store as many as 242,000 characters—equivalent to a box and a half of 80-column cards.”

“The IBM 3540 diskette input/output unit, also announced, can be attached to an IBM System/370, permitting data recorded on diskettes to be entered directly into the computer. This high speed unit can hold up to 20 diskettes at a time and read more than 3,000 data records per minute into a System/370. The 3540 also has the capability to receive information from the computer and record it on a diskette at more than 2,000 records per minute.”

**CALCULATOR** (p. 44). “A powerful electronic calculator, small enough to fit into a shirt pocket yet capable of performing the most complex business and financial calculations, was announced recently by Hewlett-Packard Company.

“The new HP-80 differs from the HP-35 (Hewlett-Packard’s original pocket-sized scientific calculator) in its built-in programming. The HP-35 solves *functions* with a single keystroke; the HP-80 solves *equations* with a single keystroke. Typical of the functions solved by the HP-35 with one keystroke are: log, ln, sin, cos, tan and  $x^y$ . Some of these functions are hard-wired into the HP-80 as subroutines within the single keystroke programs. In other words, the HP-35 has one level of programming, while the HP-80 has two levels.”

**INTEL 8008 SIMULATOR** (p. 45). “Intel Corporation has introduced a Fortran IV program for simulating the operation of Intel’s 8008 computer-on-a-chip, a complete 8-bit CPU packaged in an 18-pin DIP.

“The program, designated INTERP/8, is available from Intel on magnetic tape. It is also available under time-share arrangements with General Electric Timeshare, Tymshare Corporation and Applied Logic Corporation.”

“The addition of this simulator program completes a comprehensive set of hardware and software support to assist development of Intel’s MCS-8 micro computer systems. Support now includes prototyping system, PROM programmer, hardware assembler, Fortran IV assembler, Fortran IV simulator, several control programs and a system interface and control module.”

**SIMULATION COMPUTER** (p. 45). “A new British simulation computer which is programmed and used in a similar way to an analog computer offers digital accuracy, reliability and repeatability.

“Designed to replace conventional analog and hybrid equipment with an all-digital system, the Membrain MBD24 consists of a number of separate digital computing modules which are interconnected by means of a patch-board. Each unit is addressable from a keyboard to enable the setting of problem parameters such as gains, initial conditions, time-scale, non-linear functions and timers. Data is transmitted and received simultaneously by all units, the output of each unit being a 24-bit serial number which is updated once every 100 micro-seconds.”

“Compared with an analog computer, programming and patching a problem is claimed to be easier and to take less time. Typically, less than half the number of operational elements and patch cords are needed.”

**MULTICS SYSTEM** (p. 46). “Honeywell Inc. has introduced to commercial markets what it calls the most advanced, sophisticated computer system available in the world.

“The system, known as Multics (Multiplexed Information and Computing Service) derives from a system that evolved through more than seven years of joint effort with the Massachusetts Institute of Technology. It is designed to operate as a general-purpose system serving a large community of users and their diverse needs.”

“According to a Honeywell spokesman, Multics is the most powerful virtual memory system yet available. The Multics hardware and software, ring protection features, and paging and segmentation techniques provide ‘close to ideal’ on-line system characteristics for interactive problem solving.”

**TALKING COMPUTER** (p. 47). “Over 5,000 blind people in the Boston area have a new friend in a talking computer system that allows them to type letter-perfect correspondence, proofread manuscripts, calculate bookkeeping problems, and write computer programs.

“The first of these systems, known as an Audio-Response-Time-Shared (ARTS) Service Bureau, is operating at the Protestant Guild for the Blind in Watertown, Mass. It is

built around a Data General Corporation Nova 800 mini-computer.

“A blind person telephones the Bureau from his office, home or school and transmits information to the computer via the telephone line by using a console resembling a standard typewriter. The talking computer responds to the typist in words and sentences telling him precisely what he has typed or giving him the results of indicated commands or computations.”

**CLASSROOM FEEDBACK** (p. 47). “An \$80,000 electronic student response system, designed to increase the efficiency of student-teacher communication, is now in operation at the University of Southern California School of Medicine.

“The system, recently installed in the Louis B. Mayer Medical Teaching Center, allows individual student participation and response which would otherwise be impossible in the large classroom environment of the 500-seat auditorium.

“As questions are presented by the instructor, a push-button device on the arm of 265 seats allows the students to pick one of five possible answers. The device immediately indicates to the student whether he is right or wrong, and indicates to the instructor the percentage of the class responding, and the percentage correct or incorrect for each possible answer.”

## MARCH 1989

**GEOMETRIC COMPUTATION** (p. 31). “Despite great advances in geometric and solid modelling, practical implementation of the various geometric operations remains error-prone, and the goal of implementing correct and robust systems for carrying out geometric computation remains elusive.”

“... the problem is variously characterized as a matter of achieving sufficient numerical precision, as a fundamental difficulty in dealing with interacting numeric and symbolic data, or as a problem of avoiding degenerate positions.”

“In fact, these issues are interrelated and are rooted in the problem that objects conceptually belonging to a continuous domain are analyzed by algorithms doing discrete computation, treating a very large discrete domain—for instance, the set of all representable floating-point numbers—as if it were a continuous domain.”

**ROBOTIC EXCEPTION HANDLING** (p. 43). “A robot program can be logically correct yet fail under abnormal conditions. A major goal of robotics research is to construct robust and reliable robot systems able to handle errors arising from abnormal operating conditions. Consequently, error handling and recovery is becoming increasingly important as researchers strive to construct reliable, autonomous robot systems for factory, space, underwater, and hazardous environments.”

**SECURE DATABASES** (p. 63). “A multilevel secure database management system is a system that is secure when shared by users from more than one clearance level and contains data of more than one sensitivity level. MLS/DBMSs evolved from multilevel secure computing systems. Present-day DBMSs are not built with adequate controls and mechanisms to enforce a multilevel security policy. Thus, an MLS/DBMS is different from a conventional DBMS in at least the following ways:

“(1) Every data item controlled by an MLS/DBMS is classified in one of several sensitivity levels that may need to change with time.

“(2) Access to data must be controlled on the basis of each user’s authorization to data at each sensitivity level.”

**32-BIT EISA CONNECTOR** (p. 72). “All key aspects of the Extended Industry Standard Architecture specification—electrical, mechanical, and system configuration details—have been incorporated and distributed to participating developer companies ....”

“The specification now includes the finalization of mechanical details for the EISA 32-bit connector. The new connector will reputedly allow high-performance 32-bit expansion boards to be installed in PCs utilizing EISA when they become available later this year.”

**MICROCODE COPYRIGHT** (p. 78). “Microcode is a computer program and therefore protected under copyright laws, US District Court Judge William F. Gray ruled February 7. The ruling came at the conclusion of a 4½-year court battle in which Intel claimed that NEC’s V-series microprocessors violated the copyright on Intel’s 8086/88 microcode.

“Although he decided that microcode is protected, Gray ruled in NEC’s favor in the main dispute, finding that Intel forfeited its copyright by allowing copies of the 8086/88 chip to be distributed without copyright notice.”

**SUPERMINICOMPUTER** (p. 91). “Wang Laboratories claims that it has optimized its new superminicomputers, the VS 10000 Series, for high-volume computing by incorporating a new disk subsystem and system management software. The new models ... are reportedly based on emitter-coupled logic technology with custom gate arrays, VLSI microprocessors, and the mainframe VS instruction set.

“The VS 10000 systems use a 90-MHz clock rate and an I/O bus capacity of 30.3 Mbytes per second.”

“Other features include 32 Kbytes of write-back cache memory in the CPU, up to 64 Mbytes of addressable memory with physical accommodations for up to 256 Mbytes, a 128-bit-wide memory bus that supports 128-bit read and 64-bit write operations, an independent 80286-based support control unit, and up to 15 intelligent I/O controllers.”

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